

Teaching wild birds to sing a new tune

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Ows researcher Dan Mennill with the loudspeaker he designed to tutor sparrows in song. Credit: Dan Mennill

Like toddlers learning to speak, young birds learn to sing by listening to the voices of adults. Now, researchers reporting in *Current Biology* on October 4 have shown for the first time that they could teach young sparrows in the wild how to sing a new tune. The wild birds then passed

the new songs on to the next generation.

"I was quite shocked that our loudspeakers succeeded in teaching wild [birds](#) to sing," says Dan Mennill (@DMennill) from the University of Windsor in Ontario, Canada. "The sparrows in our island-living population had abundant opportunities to learn songs from live tutors, and yet thirty birds learned songs from the loudspeakers, providing [experimental evidence](#) of [vocal learning](#)."

Conventional experiments of vocal learning in birds have been conducted in the laboratory. But such studies are much more difficult to do in the wild. The researchers overcame the challenges in the new study by focusing their attention on Savannah Sparrows living at Bowdoin Scientific Station on Kent Island. The sparrows on this island often return to the place of their birth to breed as adults. That made it possible for researchers to expose young birds to novel songs and then record those same animals when they returned from migration to breed the next year.

Mennill's team, including researchers from the University of Windsor, University of Guelph, and Williams College, developed a new type of loudspeaker that is programmable, solar powered, light activated, and weatherproof. The speakers allowed them to broadcast adult songs with distinctive acoustic signatures for the wild sparrows over tutoring sessions that lasted for months. Over a six-year period between 2013 and 2018, they experimentally tutored five cohorts of Savannah Sparrows, from the time they hatched to adulthood.



A Savannah sparrow. Credit: Dan Mennill

Across the five cohorts, thirty birds produced songs that matched the broadcasted songs. Those songs differed from anything the birds would have heard otherwise. In all thirty cases, the researchers report, the birds produced songs containing phrases that had never been recorded on the island in three decades of field study.

The findings confirm that wild Savannah Sparrows learn songs by listening to adult Savannah Sparrows. When those young sparrows become adults, they then pass these new songs on to subsequent generations. The new findings also provide the first experimental evidence that the timing of exposure to [song](#) influences vocal learning in

[wild birds](#). The Savannah Sparrows preferentially learned songs heard in the summer they hatched and then again at the outset of their first breeding season the following year.

Mennill says this study population of Savannah Sparrows, in which some males have learned typical songs and others have learned unusual songs, now presents unique opportunities for further study.

"In the years ahead, our research team will return to Kent Island and track the fate of these unusual songs and the activities of the males that sing them," he says.



A Savannah sparrow. Credit: Dan Mennill

More information: *Current Biology*, Mennill et al.: "Wild Birds Learn Songs from Experimental Vocal Tutors" [www.cell.com/current-biology/fulltext/S0960-9822\(18\)31056-X](http://www.cell.com/current-biology/fulltext/S0960-9822(18)31056-X) , DOI: [10.1016/j.cub.2018.08.011](https://doi.org/10.1016/j.cub.2018.08.011)

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